Site Visit Report

Under the European Union (Drinking Water) Regulations 2014 as amended, the Environmental Protection Agency is the supervisory authority in relation to Irish Water and its role in the provision of public water supplies. This Audit was carried out to assess the performance of Irish Water in providing clean and wholesome water to the visited public supply.

The audit process is a sample on a given date of the facility's operation. Where a finding against a particular issue has been reported this should not be construed to mean that this issue is fully addressed.

Water Supply Zone

Name of Installation	Whiddy Island
Organisation	Irish Water
Scheme Code	0500PUB4108
County	Cork
Site Visit Reference No.	SV19579

Report Detail

Issue Date	11/02/2020
Prepared By	Criona Doyle

Site Visit Detail

Date Of Inspection	15/01/2020	**Announced**	Yes
Time In	10:00	**Time Out**	11:30
EPA Inspector(s) **Additional Visitors**	Criona Doyle Orla Harrington		
Company Personnel	Irish Water: Deirdre O'Loughlin, Oliver Harney. Cork County Council: Michael Russell, Seamus Sutton, Tim O'Leary.		

Summary of Key Findings

1. The audit confirmed that the treatment plant upgrades have been completed to reduce the potential for the formation of trihalomethanes in the supply.

2. Irish Water has completed a programme of verification monitoring to demonstrate that the actions undertaken have been adequate. 4 no. consecutive compliant samples for trihalomethanes have been provided from the network.

3. The completion of the upgrade works and submission of verification data has allowed the removal of the Whiddy Island Public Water Supply from the EPA's Remedial Action List (RAL) in the Q4 2019 review.

Introduction

The Whiddy Island Public Water Supply (PWS) was added to the EPA's Remedial Action List in Quarter 4 2018 due to persistent trihalomethanes failures in the supply. The source of the supply is Kilmore Lake and the population served by the supply is 20.

Upgrade works have been completed at the water treatment plant which reduce the potential for the formation of trihalomethanes. The treatment plant has been upgraded with the addition of a Granular Activated Carbon (GAC) filtration stage in addition to the pre existing infrastructure (1 no. slow sand filter and chlorination disinfection system) which has been retained.

Supply Zones Areas Inspected

The purpose of the audit was to verify if the Whiddy Island Public Water Supply can be removed from the EPA's Remedial Action List following the treatment plant upgrades to address the formation of trihalomethanes in the supply. The treatment plant process was audited to determine progress with the remedial works.

1. Source Protection

		Answer
1.1	Is the abstraction source(s) adequately protected against contamination?	Yes

Comment

Kilmore Lake is the source for the supply. The *Cryptosporidium* Risk Screening Score for the source is 46 (low risk).

Catchment inspections had been completed by Cork County Council the week prior to the audit. Letters had not been issued to the landowners at the time of the audit to inform them of their obligations under the European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (SI No. 31 of 2014).

2. Filtration

		Answer
2.1	Are the filters designed and managed in accordance with EPA guidance?	No

Comment

A single slow sand filter is provided on site. There is no facility to take the single slow sand filter out of service for filter ripening due to the absence of a standby filter. A depth marker is in place to record depth of the filter media in the slow sand filter.

There is no online turbidity monitor to measure the turbidity of the filtered water from the single slow sand filter to demonstrate that the slow sand filter is operating effectively. The slow sand filter is not being operated in accordance with EPA Guidance.

A 'plug and play' granular activated carbon (GAC) filtration system has been installed to address the elevated trihalomethanes in the supply. The system consists of GAC filters with Aquasorb 5,000 media. Four vessels are provided on a skid. Two vessels are in operation at all times with two provided for switchover. Backwashing of the filters or run to waste is not required. The units are replaced when the UVT drops below 85% UVT. Changeover of the GAC vessels takes place when UVT reaches 85% lower limit. Monitoring of the UVT takes place pre and post GAC filtration. At the audit the UVT pre GAC was 74.53% and post GAC 91.75%. The GAC filters meet the EPA guidance.

3. Disinfection

		Answer
3.1	Is the disinfection system verified using monitors and alarms, with trended data recorded and accessible?	Yes

Comment

Disinfection of the supply is via chlorination using 10-11% sodium hypochlorite. Dosing is flow proportional and linked to the residual chlorine monitor on the outlet from the reservoir. The chlorine level is also monitored on the inlet to the reservoir. The current alarm set points are 0.50 mg/l low chlorine alarm and 2.30mg/l high chlorine alarm with a 15 minute delay. The high level chlorine alarm level is currently being reviewed in light of the additional treatment now provided at the site and is likely to be lowered in the coming weeks. The chlorine trends can be viewed on site and on the county wide SCADA.

		Answer
3.2	Are duty and standby chlorine pumps/ UV units in operation?	Yes

Comment

The chlorine dosing pumps operate on a duty and assist basis. The assist pump operates as the standby pump and it can provide 100% of the dose if required.

4. Reservoirs and Distribution Networks

		Answer
4.1	Is treated water in tanks and reservoirs suitably protected against contamination?	Yes

Comment

No issues were observed at the time of the audit. The reservoir was last cleaned in 2014. Irish Water could not confirm at the audit if the reservoir was on the Irish Water reservoir inspection and cleaning programme.

5. Treatment Process Chemicals

		Answer
5.1	Are treatment process chemicals appropriately managed and stored?	No

Comment

There was no expiry date on the drums of sodium hypochlorite inspected. The date of manufacture was displayed.

6. Supply on the Remedial Action List

		Answer
6.1	Is the Action Programme on track to meet the Remedial Action List completion date?	Yes

Comment

The Q3 2019 remedial action list indicated March 2020 as the proposed date of completion of the action programme for the Whiddy Island public water supply.

The supply was removed from the RAL in January 2020 which is in advance of the RAL completion date of March 2020.

		Answer
6.2	Do the audit findings support progress made with the Remedial Action List upgrades?	Yes

Comment

The audit confirmed that the installation of a granular activated carbon filtration stage has been completed on site.

Irish Water have provided the verification data to demonstrate the actions undertaken have been adequate to address the elevated levels of trihalomethanes above the standard set in the Drinking Water Regulations.

		Answer
6.3	Is further information needed to assess completion of the Remedial Action List upgrade?	No

Comment

Verification data has been provided to demonstrate the actions undertaken have been adequate to achieve compliance with the trihalomethanes parametric value.

7. Site Specific Issues

		Answer
7.1	Has EDEN been updated to include the improvements to the treatment process ?	No
	Comment	
	EDEN has not been updated to include the additional granular activated carbon filtration treatment stage provided at the Whiddy Island water treatment plant.	

Recommendations

Subject	Whiddy Island Audit RAL Removal	**Due Date**	11/03/2020
Action Text	**Recommendation(s)** 1. Irish Water should install a continuous turbidity monitor on the slow sand filter at the water treatment plant. The monitor should be linked to a recording device and generate an alarm in the event of a deviation from the acceptable operating range of the filter. 2. Irish Water should provide an update to the EPA on the proposal in relation to filter ripening for the single slow sand filter. 3. Irish Water should liaise with Cork County Council to ensure landowners have been written to inform them of their obligations under the European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (SI No. 31 of 2014). 4. Irish Water should put a system in place so that stocks of sodium hypochlorite on site are regularly checked to see if they are in date 5. Irish Water should confirm the supply is on the Irish Water reservoir inspection and cleaning programme. 6. Irish Water should update the data on the EPA's EDEN portal in terms of the treatment provided following the plant upgrades. **Follow-Up Actions required by Irish Water** During the audit, Irish Water representatives were advised of the audit findings and that action must be taken as a priority by Irish Water to address the issues raised. This report has been reviewed and approved by Regina Campbell, Drinking Water Team Leader. Irish Water should submit a report to the Agency on or before 11/03/20 detailing how it has dealt with the issues of concern identified during this audit. The report should include details on the action taken and planned to address the various recommendations, including time frame for commencement and completion of any planned work. The EPA also advises that the findings and recommendations from this audit report should, where relevant, be addressed at all other treatment plants operated and managed by Irish Water. Please quote the Action Reference Number DW2017/57 in any future correspondence in relation to this Report.		